Glenn Research Center, Environmental Program Manual

Chapter 38 - ABOVEGROUND STORAGE TANKS

NOTE: The current version of this Chapter is maintained and approved by the Environmental Management Office (EMO). The revision date for this chapter is November 2003. If you are referencing paper copies, please verify that it is the most current version before use. The current version is maintained on the Glenn Research Center intranet at http://osat-ext.grc.nasa.gov/emo/pub/epm/epm-contents.pdf. Approved by: EMO Chief, Michael Blotzer {mailto:Michael.J.Blotzer@grc.nasa.gov}.

PURPOSE

This Program establishes policy, procedures, and assigns responsibilities for the installation, use, maintenance, and emergency response related to outdoor aboveground fuel storage tanks (AST's) at NASA Glenn Research Center. This chapter conforms to the Glenn Research Center (GRC), Environmental Management System (EMS) as defined in this manual Chapter 1; and supports GRC environmental policy, which promotes pollution prevention, regulatory compliance, and continuous improvement. Following the guidelines in this chapter will help achieve the GRC regulatory compliance objectives and targets. Achievement of these objectives and targets can be tracked through the audit results and CPAR records.

All GRC, tenant, resident support service contractor employees, and construction contractors involved in the use of these tanks are to be informed that their lives and health may depend on their knowledge of the fuels/chemicals they work with, they must follow proper handling procedures, and must wear appropriate protective clothing and equipment.

APPLICABILITY

This chapter is applicable to all aboveground outdoor fuel storage tanks at GRC.

REGULATIONS

The following are the authorities that presently regulate AST's at NASA Glenn. They are incorporated here by reference. The complete regulatory text should be consulted for details. AST's are regulated by numerous regulations, standards, codes, and policies under different jurisdictional authorities.

- Spill Prevention, Control, and Countermeasures (SPCC) Plan 40 CFR 112
    - Applicable to facilities with individual tanks of greater than or equal to 660 gallons, or 1,320 gallons aggregate capacity
- National Pollutant Discharge Elimination System (NPDES)/Storm Water Permit Regulations 40 CFR 122
    - Applicable to releases of rain or snow melt from tank containment
- Occupational Safety and Health Administration (OSHA), Flammable and Combustible Liquid Standard 29 CFR 1910.106
    - Applicable to flammable and combustible liquids with flash point below 200F
- OSHA, Hazard Communication Standard 29 CFR 1910.1200
    - Applicable to any chemical that could constitute a health or physical hazard to employees in the workplace
- Ohio Fire Code, Chapter 28

- Applicable to permitting by the state fire marshal of tanks that are installed, removed, repaired, or altered in any way

- National Fire Protection Association (NFPA) Codes 30 and 30A, 1990 editions

  - Applicable to flammable and combustible liquids and design/building of tanks within good engineering standards

ABOVEGROUND FUEL STORAGE TANK REQUIREMENTS

Each aboveground storage tank will have a designated individual, known as the **"tank site manager"**, who is responsible for the operation, maintenance, and overall management of the tank. The tank site manager is responsible for assuring that all elements of the AST Program are complied with, though he/she may not physically carry out the related compliance tasks. The tank site manager must be familiar with the procedures and responsibilities listed below, as they pertain to the AST's under his/her authority.

Spill control equipment is available at every AST, and should remain located near the AST site. Each tank site manager is responsible for, or shall assign a responsible individual, to conduct inspections of the spill control kit to assure it contains adequate and appropriate spill control pads, booms, bags, and any other necessary contents for use in an emergency spill clean-up situation. (40 CFR 112)

The distance between two storage tanks containing flammable or combustible liquids must be at least three feet. (OSHA 29 CFR 1910.106) (NFPA Code 30)

All AST's shall have secondary containment/diking to preclude leaks and spills from contacting the environment (e.g., floor drains, storm drains, waterways). (40 CFR 112) The requirements for AST secondary containments shall include the following:

- Secondary containments shall be large enough to contain 110 percent of the volume of the largest tank within the containment, unless oil separators in the IWS system will prevent spills from reaching the waterways. (NFPA 30)
- Any AST's brought onto the GRC facility shall be secured with secondary containment/diking adequate to prevent a release of the material to the environment. (40 CFR 112)
- In all cases, WMT shall be contacted at 3-2124 to properly drain any accumulation of rain, snow, fuel, chemicals, etc., that accumulate in the secondary containment structure. At no time, under any circumstances, should the secondary containment contents be released without WMT involvement. (40 CFR 112)
- Each AST shall have a mechanism to lockout the secondary containment drain valve, to preclude unauthorized draining from the secondary containment. The tank site manager shall hold sole responsibility for any keys that provide access to the containment. (40 CFR 112)
- Where practical, outdoor AST's shall have roofs constructed over their secondary containment structure, to limit precipitation build-up within the containment. (40 CFR 112)

RESPONSIBILITIES

Tank Site Manager (TSM)

Inspection logs for visual inspections of aboveground fuel storage tanks will be maintained by the tank site manager at the tank site, and will cover the following areas:

- Leaks and Spills - The tank site manager/designee shall assure that tanks are checked for leaks and other types of damage periodically, based on the contents and types of operations related to the tanks. (40 CFR 112)
- Water Accumulation - The tank site manager/designee will inspect secondary containments for water accumulation and shall contact EMO Waste Management Team (WMT) to arrange for proper disposal of any water that accumulates in the secondary containment. (See additional requirements below) (40 CFR 112)
- Spill Response Equipment - The tank site manager is responsible for assuring that the spill kits contain adequate materials for small spill response.

All Tank Site Managers shall attend an annual training session covering the Spill, Prevention, Control, and Countermeasures (SPCC) plan and shall ensure that all appropriate employees and tank users in their area also receive the annual training.

Each tank site manager shall assure that all fire protection equipment is adequately maintained and periodically inspected and tested to make sure it is in satisfactory operating condition in time of emergency. (OSHA 29 CFR 1910.106) **Fire suppression should only be attempted when the fire is in an incipient (just beginning to exist or appear) stage, and only by those trained to use a fire extinguisher.

The tank site manager is responsible for providing the Chemical Management Team (CMT), within EMO, with the following information regarding the material stored inside the tank:

- Proper chemical name
- NFPA 704 Hazard Information
- Material Safety Data Sheet

In areas where flammable vapors may be present, AST owners and operators must take precautions to prevent ignition by eliminating or controlling sources of ignition, such as open flames, smoking, lighting, cutting and welding, and sparks. (OSHA 29 CFR 1910.106)

Environmental Management Office (EMO)

Potential hazards of all chemicals in the workplace and appropriate protective measures must be communicated to employees by means of a comprehensive Hazard Communication Program conducted by the EMO. The program shall include container labeling, material safety data sheets (MSDS's), and training. (OSHA 29 CFR 1910.1200)

The Chemical Management Team (CMT) is responsible for providing the appropriate labels for the specific commodity stored in the tank. The labels will be located on or near the tank and visible to emergency responders. (OSHA 29 CFR 1910.1200)

Employees involved in the handling, filling/dispensing, or use of fuels from AST's, may contact the Industrial Hygiene Team (IHT) for hazard evaluation assistance. The ECT may request additional hazard evaluations by the IHT in the event of significant changes in tank operations.

The EMO shall review/update the Spill Control and Countermeasures (SPCC) plan, and make it available for reference by all GRC entities.

Glenn Safety Office (GSO)

GSO shall assure that portable fire extinguishers are provided in quantities and types as needed to protect against operation and storage hazards.

GSO shall assure that tanks are equipped with adequate venting to relieve excess pressure or vacuum that results from filling or emptying the tank. Additionally, emergency relief venting is necessary to protect tanks against excess pressure from fire exposure. (OSHA 29 CFR 1910.106) (NFPA Code 30)

Tank Filling/Dispensing Operators

Any persons whose work includes either bulk filling of one or more AST's (e.g., from a tanker truck), or dispensing materials from an AST for use shall assure that Standard Operating Procedures (SOP's) have been developed and are followed.

Any persons involved with fuel AST's, as noted above, shall review and comply with the Glenn SPCC plan.

Any persons involved with AST's as referenced above shall review and comply with the GSO Personal Protective Equipment (PPE) Program.

The Facilities Division (FD)
Tank integrity testing shall be coordinated and/or conducted by the Central Process Systems Engineering Branch at most every 10 years. Tank integrity testing documentation shall be maintained with the Facilities Division for referencing. (40 CFR 112.8(c)(6))

All GRC Personnel

Any person who discovers a spill at GRC shall immediately notify Emergency Dispatch on a Glenn in-house line (911). Emergency Dispatch will notify EMO, who will then notify the appropriate agencies of the spill incident, if necessary, and prepare a Spill Occurrence Report (40 CFR 112) (SARA Title III and CERCLA Section 103). Tank Site Managers will file mishap reports for each spill occurrence, and submit them to the EMO.

DEFINITIONS

Aboveground Storage Tank (AST)

Aboveground tanks are supported above the surface of the ground and usually are in volumes less than 50,000 gallons. AST also includes on ground tanks. On ground tanks have some part of the tank in contact with the ground, usually because of the support needed for very large quantities of liquids stored.

Safety and Assurance Directorate (SAAD)
Environmental Management Office Chief, Michael Blotzer
Chapter Lead: Kathy Smith {mailto:Kathy.Smith@grc.nasa.gov}
Web Curator: Sandra Jacobson {mailto:Sandra.Jacobson@grc.nasa.gov}
Revision date: November 2003